INSTRUCTIONS

COVERS, SEAL PLATE, AND OIL PAN

GENERAL ELECTRIC DIESEL ENGINES

I*

FIG. 1, E-14941B)

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GENERATOR-END COVER AND SEAL PLATE

DESCRIPTION

A flat-ground end-cover plate, doweled and bolted to the generator end of the engine, partially seals the main frame opening. See Fig. 1.

Lubricating oil is prevented from leaking around the crankshaft by a seal plate, which has a slinger cavity made as an integral part of it. The slinger cavity completely encircles the crankshaft coupling flange. Oil, which is thrown off the flange, is collected within the slinger cavity and then drained to the bottom of the seal plate. There, it passes thru a drain hole and into a drain tube which extends below the surface of the oil in the crankcase.

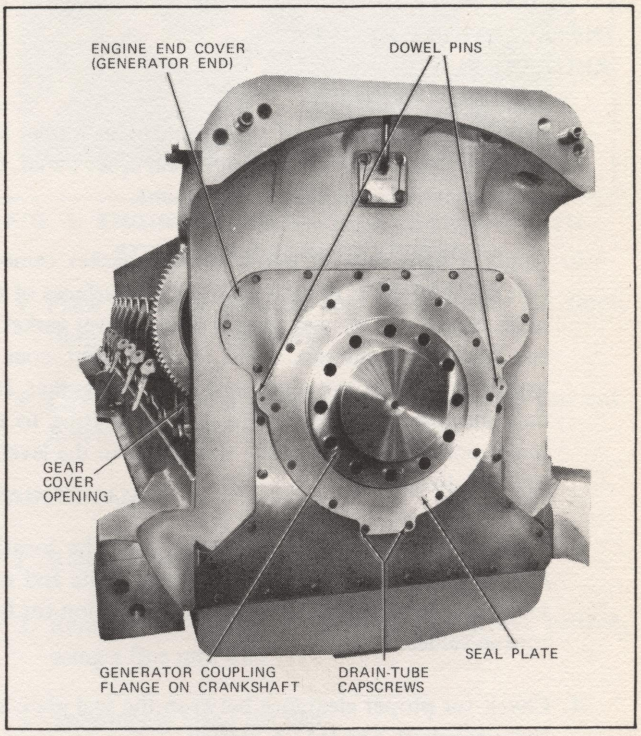

FIG. 1. ENGINE END COVER AND OIL SEAL, GENERATOR END.

REMOVAL OF COVER AND SEAL PLATE

NOTE: *It is not necessary to remove the seal plate from the end cover unless the seal plate or its gasket is to be replaced.*

1. Remove the 26 cover bolts and lockwashers.
2. Remove the two capscrews which secure the drain tube to the inner surface of the end cover. See Fig. 1.
3. Carefully pry off the cover. Be sure not to damage the dowel pins or the inner surface of the cover.

*Revisions are indicated by marginal bars.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

Verify numbers for parts, tools, or material by using the Renewal Parts or Tool Catalogs, or contact your General Electric representative for assistance. Do not order from this publication.

MAINTENANCE

Thoroughly clean the cover and the slinger cavity and drain slot in the seal plate.

Remove the old cover gasket. Check for, and remove, all nicks and upset metal on the inner surface of the cover which contacts the rear surfaces of the main frame and oil pan.

INSTALLATION OF COVER AND SEAL PLATE

1. Check mating surfaces of the cover, main frame, and oil pan. These must be free of nicks, upset metal, old gasket material, and old gasket cement.

2. Apply a light coat of non-hardening gasket cement, Part 497A806P32, to the entire sealing surfaces of the main frame and oil pan. Apply a new cover gasket to the frame and oil pan, then apply a light coat of gasket cement to the outer surface of the gasket. It is only necessary to apply this second coating to the lower portion of the gasket; that is, up to the level of the two dowels.

3. Position the cover and seal plate over the locating dowels and secure with the 26 cover bolts and new lockwashers. See TORQUE VALUES section for bolt torque values.

4. Check for proper clearance between the seal plate and the crankshaft. See DATA section.

5. Working thru the gear cover opening on the rear, left side of the main frame, install the drain tube and secure it with capscrews and NEW seal washers. See TORQUE VALUES section for capscrew torque values.

REPLACEMENT OF SEAL PLATE OR GASKET

NOTE: *This can be done best when the generator-end cover is removed from the engine. If the cover is in place on the engine, it will be necessary to work thru both the gear cover opening (See Fig. 1) and the governor drive opening on the right side of the main frame.*

1. Remove the two drain tube capscrews and the eleven capscrews and stop nuts which secure the seal plate to the cover.

2. Thoroughly clean the mating surfaces of the cover and the seal plate.

3. Using a new seal-plate gasket, secure the seal plate to the cover with capscrews and stop nuts. USE NEW SEAL WASHERS UNDER ALL CAPSCREW HEADS. See TORQUE VALUES section for capscrew torque values.

4. Install the drain tube and secure it with capscrews and NEW seal washers.

5. Check for proper clearance between the seal plate and the crankshaft. See DATA section.

NOTE: *If a new seal plate is installed, it may be necessary to reposition the dowels in the end cover to get the proper clearance between the crankshaft and the seal plate.*

ENGINE OIL PAN

DESCRIPTION

The engine oil pan is a fabricated-steel structure, enclosing the bottom of the crankcase and containing the engine lubricating-oil supply. See Fig. 2, 3 and 4.

The pan is constructed of heavy-steel side frames and end plates covered with lighter sheet steel. Baffles, welded crosswise in the pan, both reinforce it and stabilize the oil level during locomotive movement.

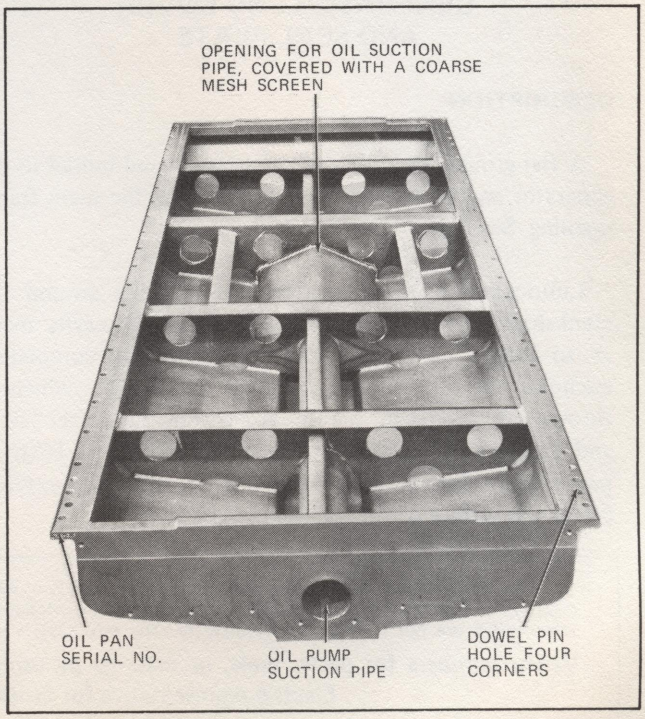
OPENING FOR OIL SUCTION PIPE, COVERED WITH A COARSE MESH SCREEN
OIL PAN SERIAL NO.
OIL PUMP SUCTION PIPE
DOWEL PIN HOLE FOUR CORNERS

FIG. 2, E-13187

FIG. 2. ENGINE OIL PAN — OLD DESIGN.

FIG. 3, E-18304

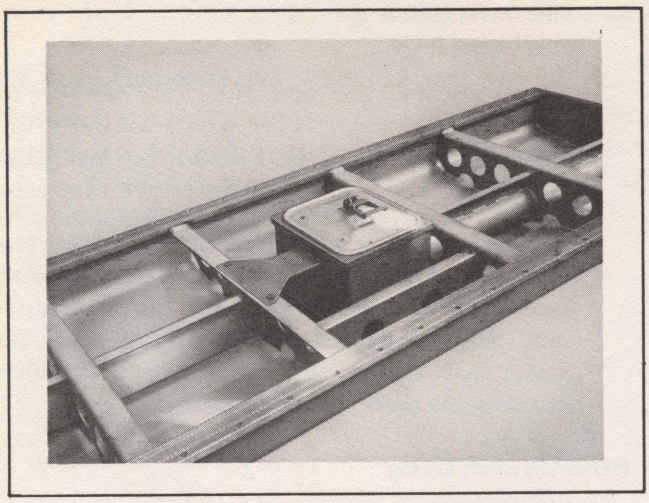

FIG. 3. ENGINE OIL PAN — NEW DESIGN — WITH STRAINER COMPLETELY ASSEMBLED.

FIG. 4, E-18305

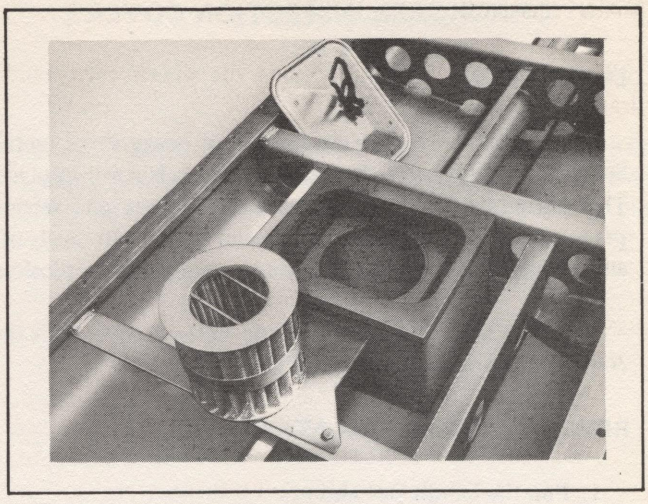

FIG. 4. ENGINE OIL PAN — NEW DESIGN — WITH STRAINER BASKET EXPOSED.

On older engines the oil suction pipe, located centrally in the bottom of the pan, has its oil admission opening covered with a coarse mesh screen. Starting in late-1972, a removable-basket type strainer was installed in new-production oil pans. This strainer has both coarse and fine openings for straining the lubricating oil prior to entering the suction pipe. See Fig. 3 and 4.

A flanged fitting, on the right side of the pan, is connected to the drain passage in the bottom of the pan.

NOTE: *The ends of the oil pan and main frame are machined flush while assembled at the time of manufacture. This is done to assure a tight seal between these two components and both end covers. Always keep the oil pan mated with its main frame by serial number. If either part must be replaced, the mating part must be returned to the factory so that proper fitting can be done.*

Four dowel pins, one at each corner of the oil pan, maintain alignment of the pan with the main frame. These dowel pins are drilled and tapped to accommodate 3/8 in.-24 screws for pulling.

NOTE: *The generator-end cover and the free-end cover must be removed from the engine before removing or applying the oil pan.*

REMOVAL

1. Arrange the engine blocking to allow for oil pan clearance. Set the engine on the blocking.
2. Insert 3/8 in.-24 bolts into the threaded dowels and remove the dowels by pulling them from the pan and frame.
3. Place blocking between the oil pan and the floor. Remove the oil pan bolts.
4. Lift the engine high enough to slide the oil pan out. Lower the engine to the blocking.

MAINTENANCE

1. Remove the old gasket.
2. Remove any nicks or burrs on the gasket surface, using a fine mill file.
3. Thoroughly clean the pan.

INSTALLATION

1. Apply a light coating of non-hardening gasket cement, Part 497A806P32, to the gasket flange, and apply new gaskets.

NOTE: *The oil-pan gaskets have excess length at both the front and rear of the oil pan. Do not cut this excess material until the pan has been completely assembled to the main frame. Cut gaskets with a sharp knife and have ends of gaskets flush with machined ends of pan and main frame.*

2. Clean the mating surface of the main frame.
3. Apply the pan to the main frame, in the reverse order to that listed under REMOVAL.
4. Properly align the dowels, apply the bolts, and tighten them to the proper torque value. See TORQUE VALUES section.

CRANKCASE INSPECTION COVERS

DESCRIPTION

The inspection covers are formed of heavy sheet metal. See Fig. 5. A spring-loaded latch holds each cover in place. This permits a cover to momentarily unseat and release pressure should a crankcase explosion occur, but shuts off any inrush of air which might cause a secondary explosion.

A rubber seal, cemented into the outer groove, seals the cover to the engine frame. See Fig. 5.

REMOVAL AND INSTALLATION

1. Pull the handle out and up.
2. Swing the handle to the left and pull the cover out.
3. Apply the covers in reverse order.

MAINTENANCE

Check each cover for lube-oil leakage in the following areas:

1. Past the gasket which seals the cover to the face of the main frame
2. Around the latch shaft where it passes outward through the cover.

Leakage at either area should be corrected immediately.

Renewing Cover Gasket

1. Remove the old gasket and thoroughly clean the groove.
2. Apply adhesive, Part 115X1030-1, in the gasket groove.
3. Apply a new gasket. Lay the cover, gasket down, on a flat surface which has an opening that clears the cover guides and latch mechanism. Hold in this position until adhesive sets (approximately one hour). The gasket may also be held in position by carefully attaching the cover in place on an engine.

Renewing Shaft O-ring

On older cover assemblies, it is first necessary to remove the 5/16-in. rivet securing the handle to the shaft. To do this, drill the peened-metal portion of the rivet, then use a hammer and punch to drive the rivet out of engagement. The handle, washer, and defective O-ring can now be removed easily from the shaft. Install a new O-ring, replace the washer and handle, and secure with a 5/16 in.-18, 1-5/8 in. long, hex-head bolt (GE Part N22P23026) and a 5/16 in.-18 hex stop nut (GE Part 499A906AAP3).

For newer cover assemblies, built since mid-1973, and secured with a bolt and stop nut, it is only necessary to remove the bolt and nut, after which handle, washer, and defective O-ring can be removed. Install a new O-ring, replace the washer and handle, and secure with bolt and stop nut.

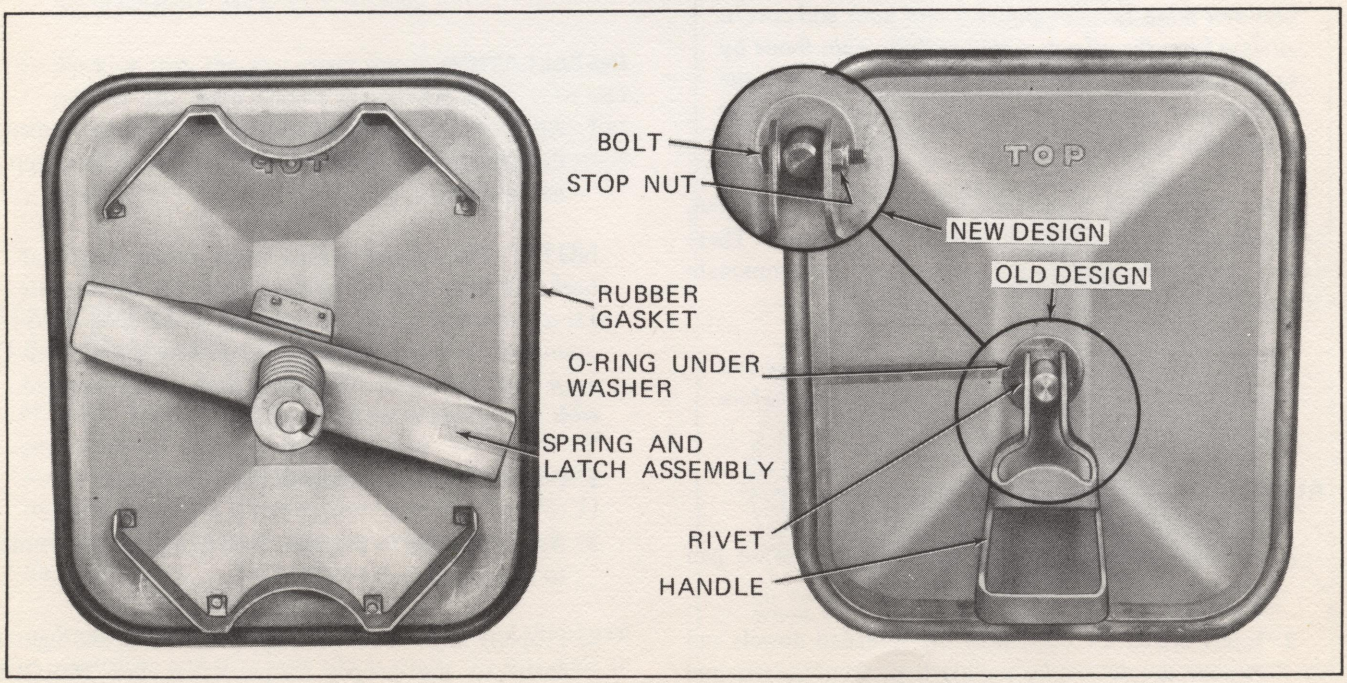

FIG. 5, E-9977B

FIG. 5. CRANKCASE INSPECTION COVER.

DATA

**Seal Plate to Crankshaft Clearance (minimum) (in.)

9 o'clock to 3 o'clock position	0.010
3 o'clock to 4 o'clock position	0.008
8 o'clock to 9 o'clock position	0.008
4 o'clock to 8 o'clock position	0.004

TORQUE VALUES (Lb.-Ft.)

Generator-end Cover Mounting Bolts	55 to 60
Seal-plate Mounting Capscrews	35 to 40
Oil-pan Mounting Bolts	105 to 115

**Measured with a 1/2-in feeler gage.